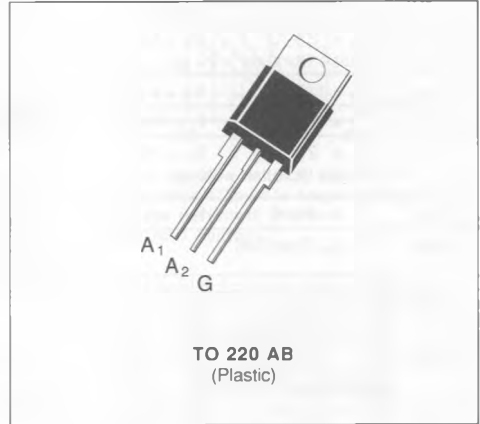


SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)


DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|-----------------------------------------------------------------------------------------|----------------------------------|------------------|
| $I_{T(RMS)}$ | RMS on-state Current (360° conduction angle) $T_C = 75\text{ }^\circ\text{C}$ | 4 | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave) | $t = 8.3\text{ ms}$ | 52 |
| | | $t = 10\text{ ms}$ | 50 |
| I^2t | I^2t Value for Fusing $t = 10\text{ ms}$ | 12.5 | A ² s |
| di/dt | Critical Rate of Rise of on-state Current (1) | Repetitive $F = 50\text{ Hz}$ | 10 |
| | | Non Repetitive | 50 |
| T_{stg} T_j | Storage and Operating Junction Temperature Range | - 40 to 150 | °C |
| | | - 40 to 110 | °C |

| Symbol | Parameter | BTA/BTB 04- | | | | | Unit |
|-----------|---------------------------------------|-------------|------|------|------|------|------|
| | | 200T | 400T | 600T | 700T | 800T | |
| V_{DRM} | Repetitive Peak off-state Voltage (2) | 200 | 400 | 600 | 700 | 800 | V |

(1) $I_G = 50\text{ mA}$ $di/dt = 1\text{ A}/\mu\text{s}$

(2) $T_j = 110\text{ }^\circ\text{C}$.

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|-------------------------|--------------------------------------------------------------------|-------|------|
| $R_{th(j-a)}$ | Junction to Ambient | 60 | °C/W |
| $R_{th(j-c)}\text{ DC}$ | Junction to Case for DC | 8.7 | °C/W |
| $R_{th(j-c)}\text{ AC}$ | Junction to Case for 360 ° Conduction Angle ($F = 50\text{ Hz}$) | 6.5 | °C/W |

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 40 \text{ W}$ ($t_p = 10 \mu\text{s}$) $I_{GM} = 4 \text{ A}$ ($t_p = 10 \mu\text{s}$)
 $P_{G(AV)} = 1 \text{ W}$ $V_{GM} = 16 \text{ V}$ ($t_p = 10 \mu\text{s}$)

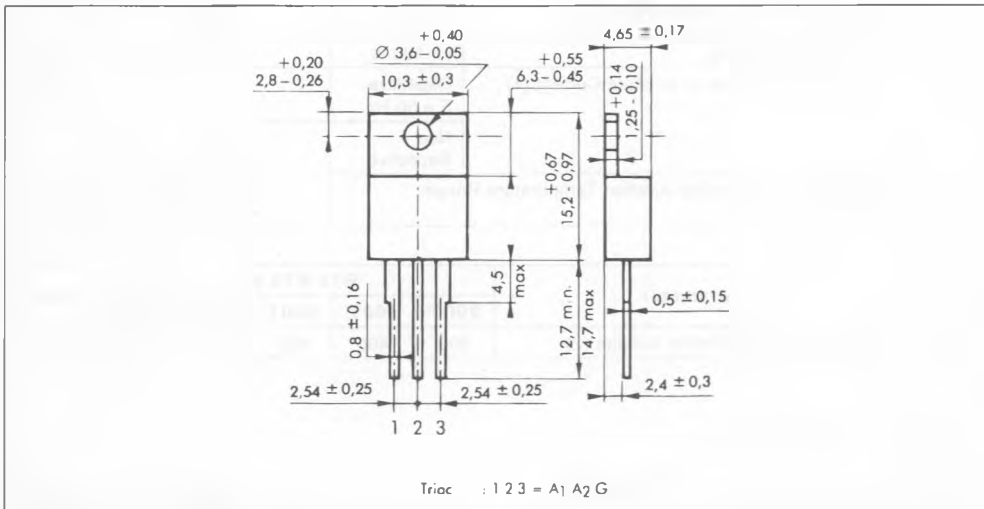
ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | Quadrants | Min. | Typ. | Max. | Unit |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------|------|------|------|-----------------------------------|
| I_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ Pulse Duration > 20 μs | I-II-III-IV | | | 5 | mA |
| V_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ Pulse Duration > 20 μs | I-II-III-IV | | | 1.5 | V |
| V_{GD} | $T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ | I-II-III-IV | 0.2 | | | V |
| I_H^* | $T_j = 25 \text{ }^\circ\text{C}$ $I_T = 100 \text{ mA}$ Gate Open | | | | 15 | mA |
| I_L | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ Pulse Duration > 20 μs | I-III-IV | | 15 | | mA |
| | | II | | 30 | | |
| V_{TM}^* | $T_j = 25 \text{ }^\circ\text{C}$ $I_{TM} = 5.5 \text{ A}$ $t_p = 10 \text{ ms}$ | | | | 1.65 | V |
| I_{DRM}^* | V_{DRM} Specified | | | | | 0.01 |
| | | | | | | $T_j = 25 \text{ }^\circ\text{C}$ |
| dv/dt^* | $T_j = 110 \text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67 \% V_{DRM}$ | | | 10 | | V/ μs |
| $(dv/dt)_c^*$ | $T_c = 75 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 5.5 \text{ A}$ (di/dt) $_c = 1.8 \text{ A/ms}$ | | | 1 | | V/ μs |
| t_{gt} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 5.5 \text{ A}$ $I_G = 20 \text{ mA}$ $di_G/dt = 0.25 \text{ A}/\mu\text{s}$ | I-II-III-IV | | 2 | | μs |

* For either polarity of electrode A_2 voltage with reference to electrode A_1 .

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g.

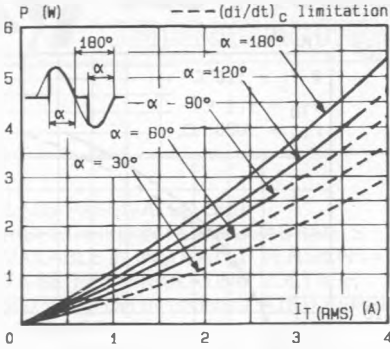


Fig. 1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

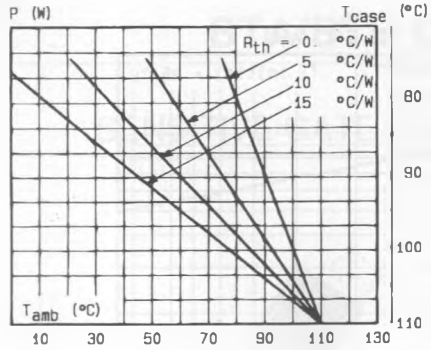


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

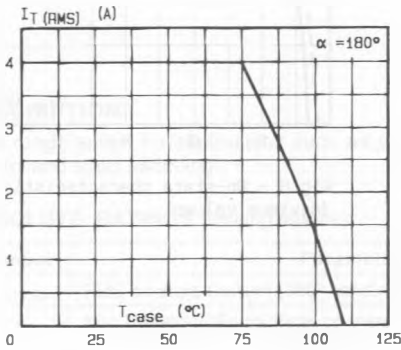


Fig. 3 - RMS on-state current versus case temperature.

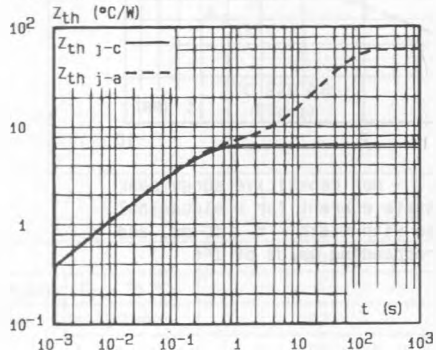


Fig. 4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

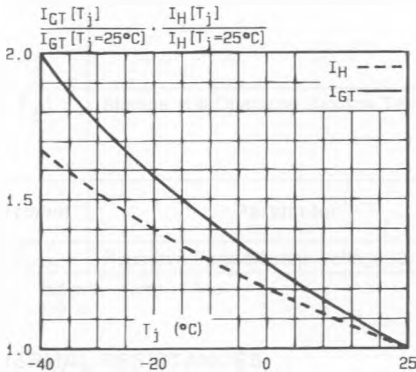


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

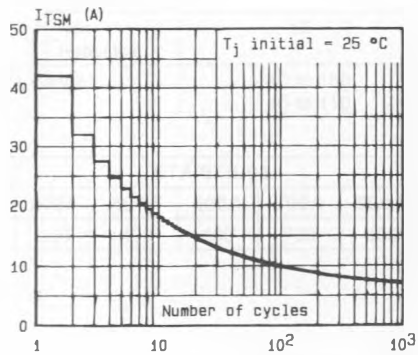


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

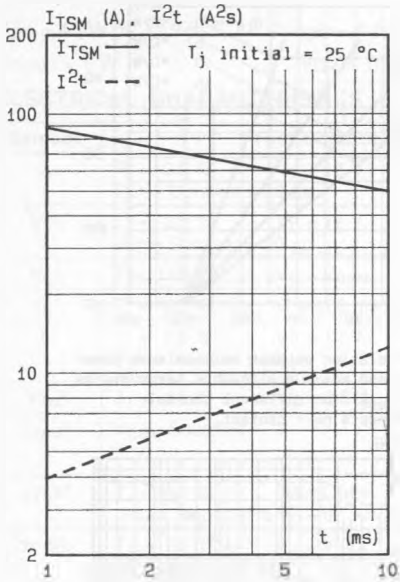


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

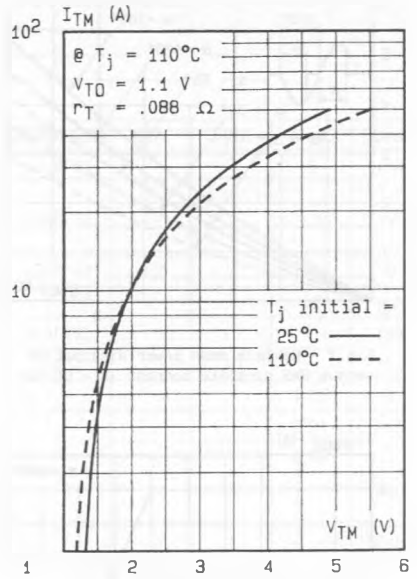


Fig.8 - On-state characteristics (maximum values).